



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/325,026	06/03/1999	YAN ROZENON	AMAT/2922/ET	2304

32588 7590 06/27/2003

APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

24
EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 06/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/325,026

Applicant(s)

ROZENON ET AL.

Examiner

Luz L. Alejandro

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 81-123 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 81-123 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

Claim 120 is objected to because of the following informalities: the claim fails to end in a period. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 100-101, 103-104, 106-111, 115-116, and 120-123 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al., U.S. Patent 5,000,113.

Wang et al. shows the invention as claimed including a processing chamber 12, comprising: a chamber body 13; a first electrode 16 for supporting a substrate in the enclosure (see col. 7, lines 19-28); and an electrode plate 32 having a second electrode opposed to the first electrode and to which a power source 28 is connected, the second electrode comprising a plate assembly comprising a first member 104 and a second member 105 coupled to one another, the second member having a bottom surface disposed at least partially in the enclosure and the first member having an upper surface connected to a support frame; and one or more temperature control channels 106 disposed at least partially in the plate assembly, wherein the one or more channels are disposed at least partially in the first member and located between the first member

and the second member; and one or more feedthroughs 98/100/102 fluidly connected to the one or more channels; and a support frame 80 adjacent a sidewall of the plate assembly opposite the first electrode and comprised of aluminum; and a baffle plate 94. For a complete description of the apparatus see figures 2, 10 and 12, and their descriptions.

Regarding claims 120-123, Wang et al. shows the invention as claimed including a processing chamber 12 comprising: a chamber body 13; a substrate support member 16 disposed within the chamber body; a retaining ring 125 coupled to the chamber body, wherein the retaining ring has a feedthrough hole formed therein; a chamber lid 32 for coupling energy from an energy source and coupled to the retaining ring, wherein the chamber lid forms a fluid inlet, a fluid outlet, and a temperature control channel, and wherein the temperature control channel is fluidly connected to the fluid inlet and fluid outlet (see fig. 10 and arrows 93,95,97); and a feedthrough 106 disposed in a feedthrough hole, wherein the feedthrough is fluidly connected to the temperature control channel, and wherein the feedthrough attaches the chamber lid to the retaining ring (see col. 12-lines 56-68).

Claims 81-92, 120-121, and 123 are rejected under 35 U.S.C. 102(e) as being anticipated by Crawley et al., U.S. Patent 5,871,586.

Crawley et al. shows the invention as claimed including a processing chamber comprising: a chamber body; a substrate support member 2 disposed within the chamber body, a retaining ring 8 having one or more feedthrough channels 28 formed

therein; one or more feedthroughs disposed in the one or more feedthrough holes; a chamber lid assembly 7 connected to the retaining ring by the one or more feedthroughs (see fig. 2); wherein the lid assembly comprises: a) a first plate 17 and a second plate 19 connected together and defining a temperature control channel therebetween, and b) a fluid inlet 27 and a fluid outlet 31 fluidly connected to the fluid channel, wherein the one or more feedthroughs enable fluid flow into and out of the fluid inlet and fluid outlet. For a complete description of the apparatus see figures 2-3 and their descriptions.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 112-114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., U.S. Patent 5,000,113.

With respect to claims 112-114, Wang et al. is applied as above but does not expressly disclose the claimed the configuration of the first and second plates and the pathway, however, such configurations are a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed first and second plates and pathways is significant, In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Claims 102, 105, and 117-119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., U.S. Patent 5,000,113 in view of Degner et al., U.S. Patent 5,074,456.

Wang et al. is applied as above but does not expressly disclose the claimed materials. Degner et al. discloses a similar apparatus in which the plate facing the workpiece support can be composed of materials such as graphite, polycrystalline silicon, quartz, glassy carbon, single crystal silicon, silicon carbide, alumina, zirconium, titanium oxide (see col. 3-line 65 to col. 4-line20). Therefore, in view of this disclosure it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the plate of the Wang et al. apparatus made of the claimed materials because such materials are suitable and well known for their high resistance to high temperatures and to wear.

Claims 93-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crawley et al., U.S. Patent 5,871,586.

Crawley et al. is applied as above but does not expressly disclose that the passageway surface area of the temperature control channel comprises between about 30% and about 60% of the surface area of the lid assembly, the claimed lid assembly materials, and the claimed configuration of the plates and the fluid channel.

With respect to the passageway surface area, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize through routine experimentation the apparatus of Crawley et al. as to comprise the claimed passageway surface area in order to optimize the cooling mechanism of the chamber cover.

Additionally, concerning the claimed lid assembly materials, official notice was taken in the previous office action with respect to this fact and therefore this limitation is taken to be admitted prior art. Furthermore, concerning the claimed configuration of the plates and the fluid channel, such configurations are a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed plates and fluid channel is significant, In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Response to Arguments

Applicant's arguments filed 4/21/03 have been fully considered but they are not persuasive.

Applicant argues that the Wang et al. reference fails to disclose the second member being disposed at least partially in an interior portion of the chamber body. However, it is clear from fig. 10 of Wang et al. that a small portion of second member 105 is exposed to the interior portion of the chamber body and therefore the claimed limitation has been met.

Furthermore, concerning applicant's contention that the peripheral channel 106 of Wang et al. cannot be considered a temperature control channel, first, it is clear that flowing gas through the channel 106 will to some extent cool the surrounding regions. Secondly, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Concerning claim 109, Wang et al. clearly discloses coupling the RF power supply to the plate 80 which contains the temperature control channel (see col. 16-lines 1-12).

With respect to applicant's argument regarding claim 110, applicant is referring to elements which are inconsistent with the examiner's rejection under 35 USC 102(b) stated above.

Regarding applicant's contention that the rejections under 35 USC 103 with respect to the Wang et al. reference, alone and in combination with a variety of other references, are improper since there is no motivation to combine the references, the

examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, ample motivation is provided in each of the rejections.

Furthermore, concerning claims 112-114, no unexpected results have been provided concerning the different claimed configurations, and therefore these rejections have been maintained.

Concerning the use of the Crowley et al. reference, applicant is relying upon figures and reference numbers that do not form part of the examiner's rejection and therefore this argument is moot.

With respect to claims 96-99, no unexpected results have been provided with respect to the different claimed configurations and therefore these rejections have been maintained.

Conclusion

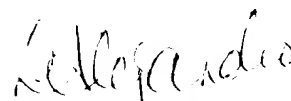
Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 703-305-4545. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Luz L. Alejandro
Primary Examiner
Art Unit 1763

June 26, 2003